

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of claims:**

1-16. (canceled)

17. (previously presented) A method for detecting non-spermine/non-spermidine N<sup>1</sup>-acetyltransferase (SSAT) activity in a mammal wherein the SSAT substrate is amantadine and the acetylated form of the SSAT substrate is acetylamantadine comprising the steps of:

- a) incubating an amount of amantadine in a mammal;
- b) obtaining a tissue or cell or body fluid sample from the mammal; and
- c) detecting acetylamantadine in the sample; and
- d) correlating the presence of acetylamantadine to SSAT activity, wherein the presence of the acetylamantadine in the sample is indicative of SSAT activity in the mammal.

18. (previously presented) A method as in claim 17, wherein the amount of amantadine is equivalent to 1-4 mg/kg.

19. (previously presented) A method as in claim 17, wherein the sample is a blood or urine sample.

20. (previously presented) A method as in claim 17, wherein the urine sample is collected 2-24 hours post-incubating said amantadine in the mammal.

21. (previously presented) A method as in claim 17, wherein the urine sample is collected 8 hours post-incubating said amantadine in the mammal.

22. (currently amended) A method as in claim 17, wherein the step of correlating the ~~amount~~ presence of ~~acetylated non-spermine/non-spermidine SSAT substrate~~ acetylamantadine in the sample comprises correlating the amount of acetylamantadine to a standard curve to determine the level of SSAT activity in the mammal.

23. (previously presented) A method as in claim 17, wherein the acetylamantadine level is detected by gas chromatography.

24. (currently amended) A method for assaying non-spermine/non-spermidine SSAT activity in a mammal, wherein the SSAT

substrate is amantadine and acetylated form of the SSAT substrate is acetylamantadine comprising the steps of:

- a) contacting a test sample obtained from the mammal with amantadine;
- b) measuring the amount of acetylamantadine produced; and
- c) relating the amount of acetylamantadine produced to a level of SSAT activity ~~by comparison to a standard curve.~~

25. (**previously presented**) The method of claim 24, wherein the sample is a homogenate of a liver tissue and the contacting step is performed at a pH of about 7.8.

26. (**currently amended**) The method of ~~claim 26~~claim 24, wherein step 1) comprises incubating the sample with the substrate for about 10 minutes at 37°C.